

WHAT IS CLAIMED IS:

1. A fluid dispenser, comprising:
- a. a housing defining an internal chamber bounded by an interior surface within said housing, said housing comprising:
- (1) an inlet for receiving a fluid product into said housing and being in fluid communication with said internal chamber, and
- (2) a discharge port through which fluid product may exit said housing, said discharge port being in fluid communication with said internal chamber; and
- b. a valving rod disposed in said housing and being movable within said internal chamber between an open position, in which fluid product may flow through said internal chamber and exit said housing via said discharge port, and a closed position, in which fluid product is substantially prevented from flowing through said internal chamber, said valving rod comprising:
- (1) a central bore,
- (2) at least one inlet for receiving a cleaning solvent, said inlet being in fluid communication with said bore, and
- (3) one or more outlet ports in fluid communication with said bore, said outlet ports being capable of directing cleaning solvent radially outwards from said bore and against said interior surface bounding said internal chamber to facilitate the removal of at least a portion of any fluid product or derivatives thereof that may be in adherence with said interior surface.
2. The fluid dispenser of claim 1, wherein said housing has a longitudinal axis;

said bore of said valving rod is substantially aligned with said longitudinal axis; and

said valving rod translates between said open and closed positions along said longitudinal axis.

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3. The fluid dispenser of claim 1, wherein
said discharge port has an interior surface that defines part of said internal chamber of said housing; and

10 said valving rod is adapted to direct cleaning solvent against said interior surface of said discharge port when said valving rod is in said closed position.

4. The fluid dispenser of claim 1, wherein said housing further comprises an internal reservoir in which cleaning solvent may be
15 contained, said internal reservoir being in fluid communication with said at least one inlet into said central bore of said valving rod.

5. The fluid dispenser of claim 4, wherein at least a portion of said valving rod is movable through said internal reservoir.

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6. The fluid dispenser of claim 4, wherein said housing has at least one inlet in fluid communication with said internal reservoir so that cleaning solvent from an external source may be added to said reservoir as needed.

25 7. The fluid dispenser of claim 6, further including a mechanism to apply a pressure ranging from about 2 to about 12 psi to said internal reservoir.

8. The fluid dispenser of claim 1, wherein said dispenser is adapted to dispense a fluid product selected from polyols, isocyanates, and mixtures of polyols and isocyanates.

5 9. The fluid dispenser of claim 4, wherein said cleaning solvent is selected from glycols, ethers, and mixtures of glycols and ethers.

10. An apparatus for dispensing fluid into flexible containers and enclosing the fluid within the containers, comprising:

- 10 a. a mechanism that conveys a web of film along a predetermined path of travel, said film web comprising two juxtaposed plies of plastic film that define a partially-formed flexible container;
- b. a dispenser through which a fluid product may flow in predetermined amounts, said dispenser positioned adjacent the travel
- 15 path of the film web such that said dispenser can dispense fluid product into the partially-formed flexible container, said dispenser comprising:
- (1) a housing defining an internal chamber bounded by an interior surface within said housing, said housing comprising:
- (a) an inlet for receiving a fluid product into said
- 20 housing and being in fluid communication with said internal chamber, and
- (b) a discharge port through which fluid product may exit said housing, said discharge port being in fluid communication with said internal chamber; and
- 25 (2) a valving rod disposed in said housing and being movable within said internal chamber between an open position, in which fluid product may flow through said internal chamber and exit said housing via said discharge port, and a closed position, in which fluid

product is substantially prevented from flowing through said internal chamber, said valving rod comprising

(a) a central bore,

(b) at least one inlet for receiving a cleaning solvent,

5 said inlet being in fluid communication with said bore, and

(c) one or more outlet ports in fluid communication with said bore, said outlet ports being capable of directing cleaning solvent radially outwards from said bore and against said interior surface bounding said internal chamber to facilitate the removal of at least a portion of any fluid product or derivatives thereof that may be in adherence with said interior surface;

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and

c. one or more devices for sealing the plies of plastic film together to complete the partially-formed container, thereby enclosing the fluid product therein.

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11. The apparatus of claim 10, wherein

said dispenser housing has a longitudinal axis;

said bore of said valving rod is substantially aligned with said

20 longitudinal axis; and

said valving rod translates between said open and closed positions along said longitudinal axis.

12. The apparatus of claim 10, wherein

25 said discharge port of said dispenser has an interior surface that defines part of said internal chamber of said housing; and

said valving rod is adapted to direct cleaning solvent against said interior surface of said discharge port when said valving rod is in said closed position.

13. The apparatus of claim 10, wherein said dispenser housing further comprises an internal reservoir in which cleaning solvent may be contained, said internal reservoir being in fluid communication with said
 5 at least one inlet into said central bore of said valving rod.

14. The apparatus of claim 13, wherein at least a portion of said valving rod is movable through said internal reservoir.

10 15. The apparatus of claim 13, wherein said housing has at least one inlet in fluid communication with said internal reservoir so that cleaning solvent from an external source may be added to said reservoir as needed.

15 16. The apparatus of claim 15, further including a mechanism to apply a pressure ranging from about 2 to about 12 psi to said internal reservoir.

17. The apparatus of claim 10, wherein said dispenser is adapted to dispense a fluid product selected from polyols, isocyanates, and mixtures of polyols and isocyanates.

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18. The apparatus of claim 10, wherein:

said housing inlet in fluid communication with said internal chamber comprises a first inlet in fluid communication with a first fluid product comprising one or more polyols;

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said housing comprises a second inlet in fluid communication with said internal chamber and with a second fluid product comprising one or more isocyanates; and

when said valving rod is in said open position, the polyols and isocyanates are mixed in said internal chamber and dispensed into the partially-formed flexible container.

5 19. The apparatus of claim 13, wherein said cleaning solvent is selected from glycols, ethers, and mixtures of glycols and ethers.

20. A fluid dispenser, comprising:

a. a housing, comprising

10 (1) an inlet for receiving a fluid product into said housing,

(2) an internal chamber disposed within said housing and being in fluid communication with said inlet, and

15 (3) a discharge port through which fluid product may exit said housing, said discharge port being in fluid communication with said internal chamber, and

(4) an internal reservoir in which cleaning solvent may be contained, said reservoir being disposed within said housing and positioned adjacent said internal chamber;

20 b. a valving rod disposed in said housing and movable within said internal chamber and said internal reservoir between an open position, in which fluid product may flow through said internal chamber and exit said housing via said discharge port, and a closed position, in which fluid product is substantially prevented from flowing through said internal chamber; and

25 c. a conduit providing fluid communication between said internal reservoir and said discharge port to deliver cleaning solvent to said discharge port, said conduit positioned externally of said internal chamber.